

# PATENT ABSTRACTS OF JAPAN

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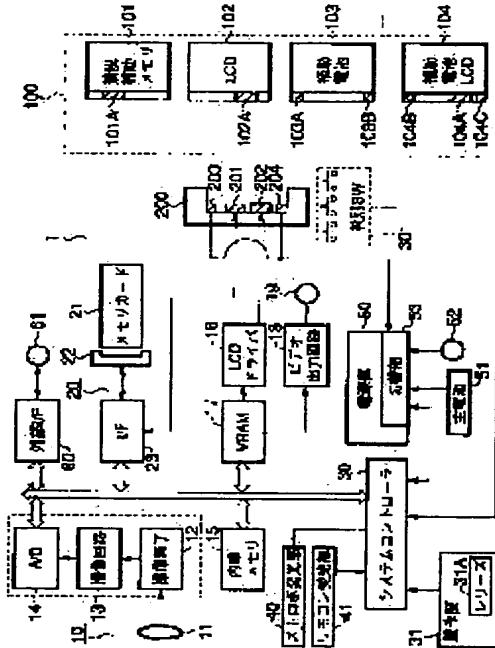
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## (54) ACCESSORY DEVICE APPLIED TO ELECTRONIC CAMERA

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To provide an accessory device which improves the availability by selectively adding auxiliary functions or extended functions without damaging the portability of an electronic camera.

**SOLUTION:** An accessory 100 can be selectively set to the rear face of an electronic camera main body 1 to add auxiliary functions or extended functions to the main function of the electronic camera. An auxiliary memory unit 101, an LCD unit 102, an auxiliary battery unit 103, or an extension unit 104 where an auxiliary battery and an LCD is provided as the accessory 100. The accessory 100 is provided with a notched part for detection so that the classification of the unit can be discriminated on the electronic camera side.



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## CLAIMS

### [Claim(s)]

[Claim 1] It is an accessory device applied to an electronic camera which has an image display means removable to a camera body, An accessory device being the composition with which has a predetermined function related

to photographing operation of an electronic camera, and said camera body is equipped removable in exchange for said image display means, and which becomes usable.

[Claim 2]It is an accessory device applied to an electronic camera which has an image display means removable to a camera body, An accessory device being the composition with which has an auxiliary battery which functions as auxiliary power of the main battery carried in said camera body, and said camera body is equipped removable in exchange for said image display means, and which becomes usable.

[Claim 3]It is an accessory device applied to an electronic camera which has an image display means removable to a camera body, An accessory device being the composition with which has a recording medium which records image data obtained by a photographing device of said camera body, and said camera body is equipped removable in exchange for said image display means, and which becomes usable.

[Claim 4]It is an accessory device applied to an electronic camera which has an image display means removable to a camera body, It has in one an auxiliary battery which functions as auxiliary power of the main battery carried in an image displaying unit and said camera body for displaying a picture based on image data obtained by a photographing device of said camera body, An accessory device being the composition with which said camera body is equipped removable in exchange for said image display means, and which becomes usable.

[Claim 5]It is an accessory device applied to an electronic camera which has an image display means removable to a camera body, It has in one a recording medium which records an image displaying unit and said image data for displaying a picture based on image data obtained by a photographing device of said camera body, An accessory device being the composition with which said camera body is equipped removable in exchange for said image display means, and which becomes usable.

[Claim 6]It is an accessory device applied to an electronic camera which has an image display means removable to a camera body, It has in one a recording medium which records image data obtained by a photographing device of an auxiliary battery which functions as auxiliary power of the main battery carried in said camera body, and said camera body, An accessory device being the composition with which said camera body is equipped removable in exchange for said image display means, and which becomes usable.

[Claim 7]It is an accessory device applied to an electronic camera which has an image display means removable to a camera body, An accessory device being the composition with which has a solar cell which generates electric power by condensing to a solar panel, and said camera body is equipped removable in exchange for said image display means, and which becomes usable.

[Claim 8]It is an accessory device applied to an electronic camera which has an image display means removable to a camera body, An accessory device being the composition with which has a remote controller for operating an electronic camera remotely, and said camera body is equipped removable in exchange for said image display means, and which becomes usable.

[Claim 9]It is an accessory device applied to an electronic camera which has an image display means removable to a camera body, It has in one an image displaying unit for displaying a picture based on image data obtained by remote controller for operating an electronic camera remotely, and a photographing device of said camera body, An accessory device being the composition with which said camera body is equipped removable in exchange for said image display means, and which becomes usable.

[Claim 10]It is an accessory device applied to an electronic camera which has an image display means removable to a camera body, An accessory device which is the composition with which has a predetermined function related to photographing operation of an electronic camera, and said camera body is equipped removable in exchange for said image display means, and which becomes usable, and is characterized by having a discriminating means which can make a kind of said function distinguish by said camera body side.

[Claim 11]The accessory device according to claim 10, wherein said discriminating means is what outputs code information concerning a kind of accessory device to an electronic camera.

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## DETAILED DESCRIPTION

### [Detailed Description of the Invention]

[0001]

[Field of the Invention]An electronic camera is equipped especially with this invention, and it relates to the accessory device for realizing the auxiliary function or expanded function to a main function required for photographing operation of the electronic camera concerned.

[0002]

[Description of the Prior Art]The electronic camera carries the recording medium for recording the cell used as the power supply for operation, and the image data obtained by photography in the camera body. Here, an electronic camera also contains the digital video camera which makes animation photography a main function in addition to the electronic still camera currently called the digital camera. A recording medium contains the memory card which uses IC memories (EEPROM etc.), a hard disk drive, a magneto-optical disc (MO), etc.

[0003]By the way, since it is common to carry and take a photograph as for an electronic camera, to be small and lightweight is demanded. Therefore, a mass cell and carrying memories (especially two or more memory cards, a mass disk drive, etc.) do not have a practical camera body. However, by one side, a mass cell and memory may be needed with the increase in photography number of sheets depending on photographing conditions, such as a travel and a business trip.

[0004]In order to cope with such a request, in the former, the camera which can detach and attach an auxiliary battery at the back of a camera body, for example is proposed (see JP,1-146468,A).

[0005]

[Problem(s) to be Solved by the Invention]In the electronic camera which is thinking small size and a weight saving as important, the capacity of the cell which can be carried in a camera body, or a memory is restricted. For this reason, a user will carry a spare cell and memory and will exchange if needed. However, not only such a thing is troublesome, but has a possibility of missing a photo opportunity at the time of exchange. Size becomes large by the added auxiliary battery, and the method which makes a camera body equip with the above-mentioned auxiliary battery will spoil the portability of a camera body.

[0006]It is desirable that not only the addition of auxiliary functions, such as a cell and an addition of a memory, but the addition of expanded function which can equip with LCD with a remote control function if needed, for example can be performed. However, in the addition system of a mere unit, the portability of a camera body will be spoiled as mentioned above.

[0007]Then, the purpose of this invention is to provide the useful accessory device which can improve the usability of an electronic camera, as an auxiliary function or expanded function can be selectively added to the main function of an electronic camera, without spoiling the portability of an electronic camera.

[0008]

[Means for Solving the Problem]It can equip with this invention selectively to a main part of an electronic camera, and it relates to an accessory device for realizing an auxiliary function or expanded function which can be added to a main function of an electronic camera. An accessory device is an exchanged type unit which specifically realizes expanded function, such as an auxiliary battery which realizes an auxiliary function, an auxiliary memory card or a remote control.

[0009]It is the composition which a camera body is equipped with the accessory device concerned removable to a camera body in exchange for an image display means in this invention supposing an electronic camera removable in image display means, such as LCD, and becomes usable.

[0010]If an accessory device of such composition is used, an auxiliary function or expanded function can be added to a main function of an electronic camera using a space (for example, the back side) where a camera body was restricted. In this case, since it exchanges for an LCD unit which is an image display means and a camera body is made to equip with an accessory device, size of a camera body does not become large and the portability of an electronic camera can be maintained.

[0011]When it specifically equips with an accessory device which is an auxiliary battery unit, the increase of the

power supply of the main battery of a camera body can be carried out with an auxiliary battery. Since the increase of the capacity of a memory of a camera body can be carried out when it equips with an accessory device of a memory card which records image data, photography number of sheets can be made to increase as a result. When it equips with an accessory device which has a remote control function with which a camera body is not equipped standardly, a kind of expanded function can be realized to an electronic camera.

[0012]

[Embodiment of the Invention]With reference to drawings, an embodiment of the invention is described below.

[0013](Composition of an electronic camera) Drawing 1 is a block diagram showing the important section of the electronic camera related to the embodiment. The electronic camera of the embodiment assumes the usable electronic still camera (digital camera) of the accessories 100 for adding an auxiliary function and expanded function in addition to the main function by standard equipment.

[0014]As shown in drawing 1, the camera body 1 is divided roughly and comprises the photographing system 10, a memory system, a display system, a control operation system, and an electrical power system. The photographing system 10 is provided with the following.

Taking-lens system (a zoom lens, a converging section, an automatic focusing lens, etc. are included) 11.

Image sensor 12.

Image pick-up circuit 13.

A/D converter 14.

[0015]In usual, the image sensor 12 has millions of pixels CCD (charge coupled device), and carries out photoelectric conversion of the object image which entered via the taking-lens system 11. The image pick-up circuit 13 inputs the imaging signal from the image sensor 12, and performs various kinds of signal processing, such as a gamma correction and white balance adjustment. A/D converter 14 changes into a digital signal (image data) the imaging signal (analog signal according to a pixel number) acquired from the image pick-up circuit 13.

[0016]A memory system has the recording-medium unit 20 for saving image data in addition to internal memory (it may be written as buffer memory below) 15 which functions as a buffer memory. The electronic camera of the embodiment has the recording-medium unit 20 which can equip with two or more kinds of recording media. The recording-medium unit 20 has the card slot 22 and the interface 23 which can equip with the memory card 21 which is an exchangeable recording medium removable. Although the memory card 21 which consists of a flash EEPROM is here assumed as a recording medium, an exchangeable magneto-optical disc (MO) etc. may be sufficient. In the embodiment, when it is considered as the main memory of standard equipment of the memory card 21 concerned so that it may mention later, an auxiliary memory can be added with the accessories 100.

[0017]A display system is provided with the following.

LCD driver 16 for driving LCD (liquid crystal display) for displaying a taken image.

Video memory (VRAM) 17 which stores the data for a display.

Video output circuit 18.

Video output terminal 19.

Here, in the embodiment, LCD consists of a removable unit (102) contained in the accessories 100 so that it may mention later. The applied part (200) provided in the back side of the camera body 1 is equipped with the LCD unit (102) concerned removable, and it mainly displays a taken image. The LCD unit (102) concerned may display the information for operation, including a menu screen, a continuous shooting mode, a stroboscope, a white balance, etc., in addition to a taken image. The composition that exclusive LCD which displays only the information for operation was provided apart from the LCD (102) concerned may be used.

[0018]A control operation system consists of the system controller 30 and the final controlling element 31. The system controller 30 comprises a memory which stored CPU for control (microprocessor), and its control program. The system controller 30 controls the above-mentioned photographing system 10, and performs various image processing stored in the buffer memory 15, such as graphical-data-compression processing of image data, and picture elongation processing. The system controller 30 performs acceptance processing of control of the strobe light part 40, the various inputs from the final controlling element 31 and the remote control light sensing portion 41, and an input of the power supply switching signal from the power supply section 50. In the embodiment, the system controller 30 inputs the discrimination signal from the discrimination section (it consists of a distinction switch group) 301 for distinguishing the unit kind of accessories with which the applied part 200 was equipped, and control accompanying the discrimination signal concerned is performed (it mentions later).

[0019]The final controlling element 31 has the release (shutter) button 31A, the cross key for selection, the dial for mode setting out (reproduction, photography, power-off, etc.), etc. The remote control light sensing portion 41 receives the infrared signal from the remote control (contained in LCD unit 102 in the embodiment) contained in accessories, changes it into a manipulate signal, and is sent out to the system controller 30.

[0020]The power supply section 50 supplies the DC power supply from the main battery 51 or the external power input terminal 52 to each element in the camera body 1. The power supply section 50 has the power source switching part 53 for changing a power supply input. The power source switching part 53 changes the power supply input from the auxiliary battery (103,104) with which the main battery 51, the external power input terminal 52, or the applied part 200 was equipped. The power supply section 50 has a detector circuit which detects the remaining capacity of the main battery 51 or an auxiliary battery (103,104), and has a function which notifies a detection result to the system controller 30.

[0021]The camera body 1 has the external interface 60 and the terminal 61 for external outputs for outputting image data outside, for example, can send out image data to television or a personal computer.

[0022]The camera body 1 of the embodiment has the applied part 200 for using the accessories 100, as mentioned above. The accessories 100 are composition which consists of two or more kinds of card units (101-104) for adding an auxiliary function and expanded function, and uses it carrying out the common slot of the applied part 200. The auxiliary memory unit 101 which functions on a card unit as an auxiliary memory at the time of specifically using the memory card 21 as main memory, The auxiliary battery unit 103 used as auxiliary power of the main battery 51, the expansion unit 104 in which an auxiliary battery and LCD were unified, and LCD unit 102 are contained.

[0023]The applied part 200 has two or more connectors 201-204 corresponding to the connector provided in each card unit (101-104). The discrimination section 301 has a sensor which detects each card unit connected to each connectors 201-204 of the applied part 200, and sends out the discrimination signal of the kind of card unit with which the applied part 200 concerned was equipped to the system controller 30.

[0024]The connector 101A of the auxiliary memory unit 101 and connection are possible for the connector 201 of the applied part 200, and, specifically, it is connected to the interface 23 of the recording-medium unit 20. The connector 102A of LCD unit 102 or the connector 104A for LCD of the expansion unit 104, and connection are possible for the connector 202, and it is connected to LCD driver 16. The connectors 103A and 103B of the auxiliary battery unit 103 or the connectors 104B and 103C of the expansion unit 104, and connection are possible for the connector 203,204, and it is connected to the switching part 53 of the power supply section 50.

[0025](A camera body and the structure of an applied part) Drawing 3 is a figure showing the appearance of the camera body 1 of the embodiment. The figure (A) is a figure showing the back side, and the figure (B) is a figure showing the front-face side.

[0026]As shown in the figure (B), the taking-lens system 11 is formed in the front-face side of the camera body 1. The release button 31A and other manual operation buttons 31B of the final controlling element 31, and LCD70 of monochrome are provided in the upper surface side of the camera body 1. This LCD70 is LCD for displaying the information for operation, for example.

[0027]On the other hand, the applied part 200 which comprises the main part 1 concerned and an one crevice is formed in the back side of the camera body 1. The shape and size (the depth is included) of the crevice concerned are set up agree mostly in the contour shape and size (thickness is included) of each card units 101-104 of the accessories 100. Inside the crevice of the applied part 200, each sensors 210-212 contained in each connectors 201-204 and the discrimination section 301 and the mechanical locking mechanism 220 are formed in the position.

[0028]Each sensors 210-212 detect the notch section for detection provided in each card units 101-104 so that it may mention later. The discrimination section 301 distinguishes the kind of each card units 101-104 based on the detection result from each sensors 210-212. The locking mechanism 220 is locked in order to hold the card unit with which the crevice was equipped. The eject button 230 for canceling the locking mechanism 220 and removing the card unit with which it was equipped near the crevice of the applied part 200, is formed.

[0029]The cross key 31C for selection contained in optical FANDA 71 and the final controlling element 31 is formed in the camera body 1 at the back side, and the external power input terminal 52 and the terminal 61 for external outputs are formed in the side side. The stowage which can store two or more cells (here rechargeable battery) which are the main battery 51 is established in the inside of the camera body 1.

[0030](Accessory device) Drawing 4 to drawing 7 is a figure showing the appearance of each card unit contained in the accessories 100 of the embodiment.

[0031] Drawing 4 (A) shows the side front (field which constitutes the same flat surface as the back side of the camera body 1) of the rechargeable auxiliary battery unit 103, for example. The figure (B) shows the back side (crevice side of the applied part 200). The connectors (contact surface) 103A and 103B for connecting with each connector (contact surface) 203,204 of the applied part 200 (contact) are formed in the slot 103E on the back side concerned. For example, it is contained in the discrimination section 301, the notch section 103D for detection corresponding to the sensor 212 is formed in the back side concerned. The lock part 103C corresponding to the locking mechanism 220 of the applied part 200 is formed in the lateral portion.

[0032] Drawing 5 (A) shows the side front of LCD unit 102 provided with the remote control function. The figure (B) shows the back side. The connector 102A for connecting with the connector 202 of the applied part 200 is formed in the slot 102D on the back side concerned. For example, it is contained in the discrimination section 301, the notch section 102B for detection corresponding to the sensor 211 is formed in the back side concerned. The lock part 102C corresponding to the locking mechanism 220 of the applied part 200 is formed in the lateral portion.

[0033] As shown in the figure (A), LED112 for remote controls is provided in the upside surface of LCD unit 102. The manipulate signal which emitted light from this LED112 is received by the remote control light sensing portion 41 provided in the camera body 1. The remote-control-operation button 113 is formed near the LCD screen.

[0034] LCD unit 102 shown in drawing 1 is a unit of only image display functions without a remote control function, and its composition of those other than the component (112,113) which realizes a remote control function is the same.

[0035] Drawing 6 (A) shows the side front of the auxiliary memory unit 101. The figure (B) shows the back side. The connector 101A for connecting with the connector 201 of the applied part 200 is formed in the slot 101B on the back side concerned. For example, it is contained in the discrimination section 301, the notch section 101D for detection corresponding to the sensor 210,212 is formed in the back side concerned. The lock part 103D corresponding to the locking mechanism 220 of the applied part 200 is formed in the lateral portion.

[0036] Drawing 7 (A) is a figure in which LCD unit 114A and the auxiliary battery unit 114B show the expansion unit 104 constituted in one. This expansion unit 104 is LCD unit 114A in which a side front (field which constitutes the same flat surface as the back side of the camera body 1) serves as a display, and the back side is the auxiliary battery unit 114B. Each connectors (contact surface) 104A and 104B and the connector 104A for connecting with each connector (contact surface) 203,204 and the connector 202 of the applied part 200 are provided in the auxiliary battery unit 114B. The lock part 104D corresponding to the locking mechanism 220 of the applied part 200 is formed in the lateral portion of the auxiliary battery unit 114B. A disengageable structure may be [ this expansion unit 104 ] sufficient as LCD unit 114A and the auxiliary battery unit 114B.

[0037] Drawing 7 (B) is a kind of the auxiliary battery unit 103, and equips with the solar panel 400 a side front (field which constitutes the same flat surface as the back side of the camera body 1). The connectors (contact surface) 103A and 103B for connecting with each connector (contact surface) 203,204 of the applied part 200 (contact) are formed in the back side concerned. For example, it is contained in the discrimination section 301, the notch section 103D for detection corresponding to the sensor 212 is formed in the back side concerned. The lock part 103C corresponding to the locking mechanism 220 of the applied part 200 is formed in the lateral portion.

[0038] (Operation effect) By using the accessories 100 of the above embodiments, to the main function of an electronic camera, an auxiliary function and expanded function can be added and the usability of an electronic camera can be raised. Each card unit of the accessories 100 is a structure with which the applied part 200 which is a crevice established in the back side of the camera body 1 is equipped and which is united with the camera body 1. Therefore, the outside size of the original small lightweight camera body 1 becomes large, and does not spoil portability.

[0039] When monitoring a taken image by LCD, specifically, the applied part 200 will be equipped with LCD unit 102. In this case, LCD unit 102 with a remote control function may be used. In the addition of an auxiliary function which increases the storage capacity of the main memory 21, or the power supply of the main battery 51, it equips with the auxiliary memory unit 101 or the auxiliary battery unit 103 at the applied part 200. If the expansion unit 104 in which the auxiliary battery unit and the LCD unit were unified is used, it will become possible to realize simultaneously the image display functions by LCD, and the auxiliary function which increases the power supply of the main battery 51.

[0040] (Charge control) Charge control is explained as an example of the auxiliary function at the time of using

the auxiliary battery unit 103 provided with the solar panel 400 as the accessories 100 with reference to drawing 2 and drawing 8 below.

[0041]The auxiliary battery unit 103 has the solar panel 400 in addition to rechargeable auxiliary battery 403, and it is constituted so that the auxiliary battery 403 can be charged via the control section 401 and the live part 402 with the electric power obtained with the solar panel 400. If the applied part 200 is equipped with the auxiliary battery unit 103, it will be connected to the power supply section 50 of the camera body 1 via the connectors (contact surface) 103A and 103B. Via the contact surface 103E for signals, the control section 401 of the auxiliary battery unit 103 is constituted so that it may be connected to the system controller 30 of the camera body 1.

[0042]On the other hand, the power supply section 50 of the camera body 1 has the live part 54 and DC to DC converter 55 in addition to switching part 53 mentioned above. DC to DC converter 55 changes into the rated voltage for operation of the camera body 1 the voltage from the input power changed by the switching part 53. The live part 54 charges the main battery 51 with the electric power of the input power by the switching part 53.

[0043]In such composition, the example of charge control is explained with reference to the flow chart of drawing 8.

[0044]The system controller 30 of the camera body 1 is supervising the remaining capacity of the main battery 51 by the detector circuit (not shown) established in the power supply section 50.

[0045]When it judges with the system controller 30 running short of the remaining capacity of the main battery 51 of the camera body 1, charge to the main battery 51 is performed using the auxiliary battery unit 103 with which it was equipped (NO of Step S1). That is, the system controller 30 makes the electric power from the solar panel 400 supply to the switching part 53 of the power supply section 50 via the control section 401 of the auxiliary battery unit 103. Thereby, in the power supply section 50, the live part 54 charges the main battery 51 with the electric power from the solar panel 400 as input power from the switching part 53 (step S4).

[0046]In the auxiliary battery unit 103, when the remaining capacity of the auxiliary battery 403 runs short of the control sections 401, the auxiliary battery 403 is charged via the live part 402 with the electric power obtained with the solar panel 400 (Step S2, S3). However, when the remaining capacity of the auxiliary battery 403 is insufficient and the remaining capacity of the main battery 51 of the camera body 1 is insufficient. The control section 401 uses the electric power obtained with the solar panel 400 as mentioned above according to directions of the system controller 30, and carries out charge control preferentially to the main battery 51.

[0047]When it carries out using the auxiliary battery unit 103 provided with the solar panel 400 as mentioned above, the electric power obtained with the solar panel 400 concerned can be used, and charge over the main battery 51 of the camera body 1 can be performed. Though natural, the auxiliary battery 403 of the auxiliary battery unit 103 can be used, and the power supply for operation can be supplied to the camera body 1 via the power supply section 50 instead of the main battery 51.

[0048](Modification) Drawing 9 is a figure showing the appearance of the camera body related to the modification of the embodiment, and accessories.

[0049]This modification is an electronic camera which has the structure where the disk recording unit 90 which uses disk recording media, such as MO, for the back side of a camera body is formed removable, as shown in drawing 9 (A). LCD unit 91 contained in the above accessories is formed in the side side of the camera body concerned removable. The taking-lens system 11 is formed in the front-face side of a camera body. LCD70 of the various buttons 31B and the release button 31A of the final controlling element 31, and monochrome and the popped-up type stroboscope 94 are formed in the upper surface side of a camera body. The optical finder 71 and the dial 93 for operation are formed in the position by the side of the back.

[0050]As shown in the Drawing (B) and (C), the stowage (applied part) 95 which consists of a crevice for storing LCD unit 91 is established in the side side concerned. The heights 96 for maintenance and the connector (or contact surface) 97 corresponding to the crevice for maintenance (99) established in the unit are provided in this stowage 95. The eject button 92 for taking out accessories, such as LCD unit 91, is formed in the back side near the stowage 95.

[0051]As accessories, as shown in the figure (D), there is the auxiliary battery unit 98 in addition to LCD unit 91. As mentioned above, the auxiliary battery unit 98 contains a rechargeable auxiliary battery, and has the crevice 99 for maintenance in a lateral portion.

[0052]In the back side, it has the disk recording unit 90, for example, and the camera body of the above structures of this modification has an applied part (stowage) equipped with the accessories which are recording

media and which contain LCD unit 91 in the side side. Therefore, since the applied part of accessories is provided in the side side as compared with the camera body of the embodiment, size becomes large somewhat, but portability is not spoiled so much and exchangeable accessories can be used.

[0053](Modification of accessories) According to the embodiment, the distinction method using the notch section for detection for distinguishing the kind (kind of each card units 101-104) of accessories is assumed. The method which uses the recognition code set up for every kind of accessories as a modification of this distinction method may be used.

[0054]In this modification, the small cell is built in accessories (each card unit), and the circuit which outputs the recognition code (for example, triplet) further set up beforehand from the connector for kind detection is provided. The composition arranged as an exclusive connector near the connector for signals (for example, 101A) (common position of each accessories) may be sufficient as the connector for kind detection, and it may be constituted in one with the connector for signals concerned.

[0055]The applied part 200 transmits the recognition code which has a connector corresponding to the connector for kind detection concerned, and is outputted from the accessories with which it was equipped to the system controller 30. The system controller 30 decodes a recognition code and distinguishes the kind of accessories with which the applied part 200 was equipped.

[0056]When it was a distinction method of such this modification and the kind of accessories increases, as compared with the method using the notch section for detection, it is effective in the ability to respond easily.

[0057]

[Effect of the Invention]If the accessory device of this invention is used as explained in full detail above, the auxiliary function and expanded function like an auxiliary battery or an auxiliary memory can be selectively added to an electronic camera. The usability of an electronic camera can be raised without spoiling the portability of the main part of an electronic camera.

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## DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1]The block diagram showing the important section of the electronic camera related to the embodiment of this invention.

[Drawing 2]The block diagram showing an example of an auxiliary battery unit related to the embodiment.

[Drawing 3]The perspective view showing the appearance of the camera body related to the embodiment.

[Drawing 4]The perspective view showing the appearance of the accessories related to the embodiment.

[Drawing 5]The perspective view showing the appearance of the accessories related to the embodiment.

[Drawing 6]The perspective view showing the appearance of the accessories related to the embodiment.

[Drawing 7]The perspective view showing the appearance of the accessories related to the embodiment.

[Drawing 8]The flow chart which shows the procedure of the charge control at the time of using the auxiliary battery unit contained in the accessories of the embodiment.

[Drawing 9]The perspective view showing the modification of the embodiment.

[Description of Notations]

1 -- Camera body

10 -- Photographing system

11 --- Taking-lens system  
12 --- Image sensor  
13 --- Image pick-up circuit  
14 --- A/D converter  
15 --- Internal memory  
16 --- LCD driver  
17 --- Video memory (VRAM)  
18 --- Video output circuit  
19 --- Video output terminal  
20 --- Recording-medium unit  
21 --- Memory card  
22 --- Card slot  
23 --- Interface  
30 --- System controller  
31 --- Final controlling element  
40 --- Strobe light part  
41 --- Remote control light sensing portion  
50 --- Power supply section  
51 --- Main battery  
52 --- External power input terminal  
60 --- External interface  
61 --- Terminal for external outputs  
70 --- LCD (monochrome)  
100 --- Accessories  
101 --- Auxiliary memory unit  
102 --- LCD unit  
103 --- Auxiliary battery unit  
104 --- Expansion unit  
200 --- Applied part  
201-204 --- Connector  
301 --- Discrimination section

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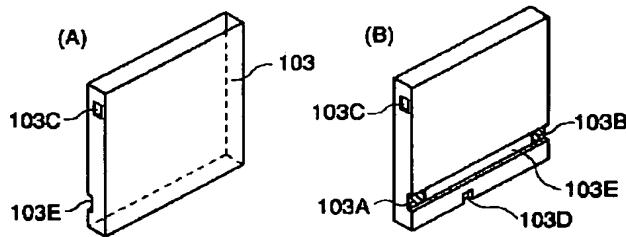
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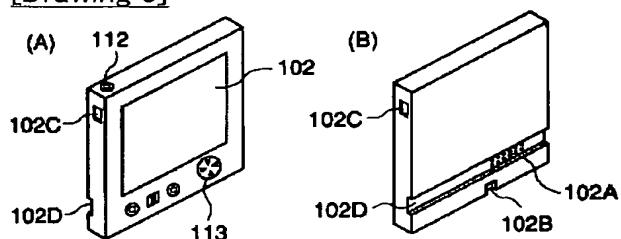
DRAWINGS

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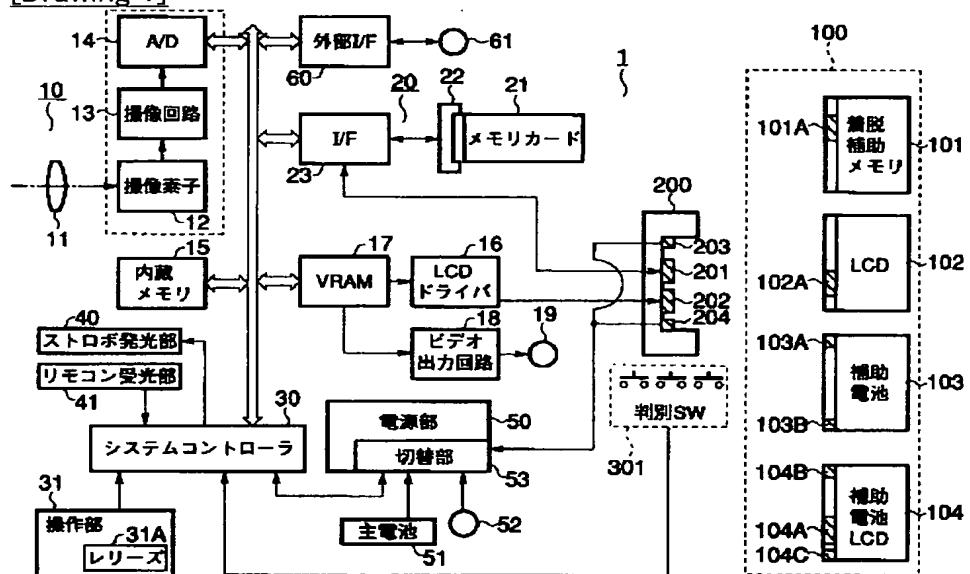
[Drawing 4]



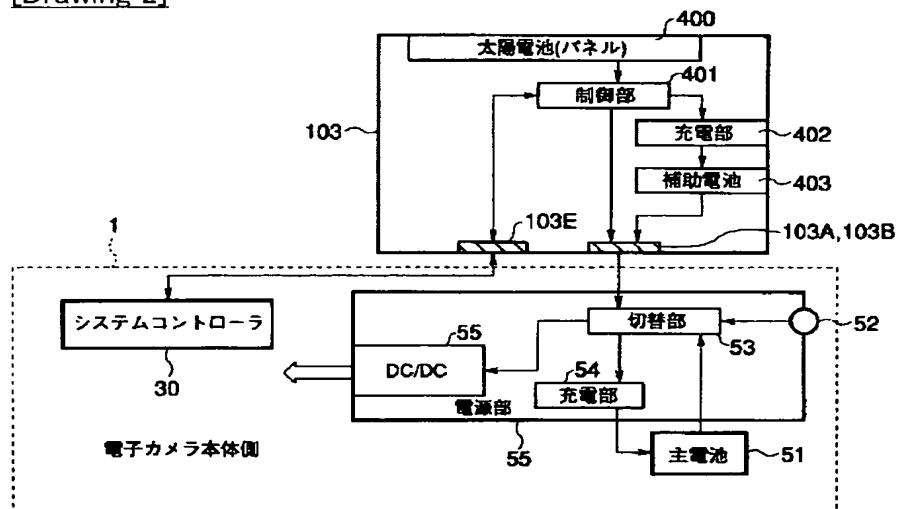
[Drawing 5]



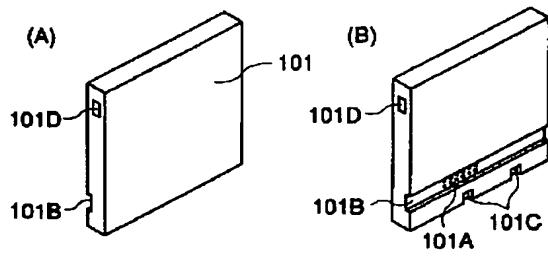
[Drawing 1]



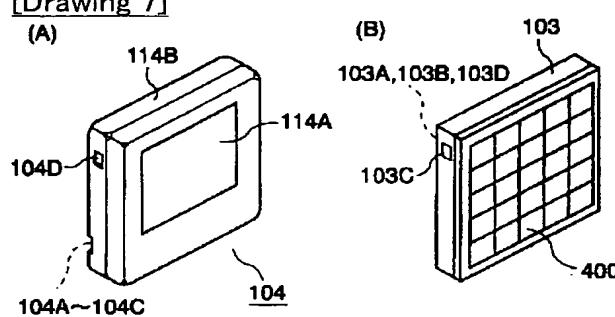
[Drawing 2]



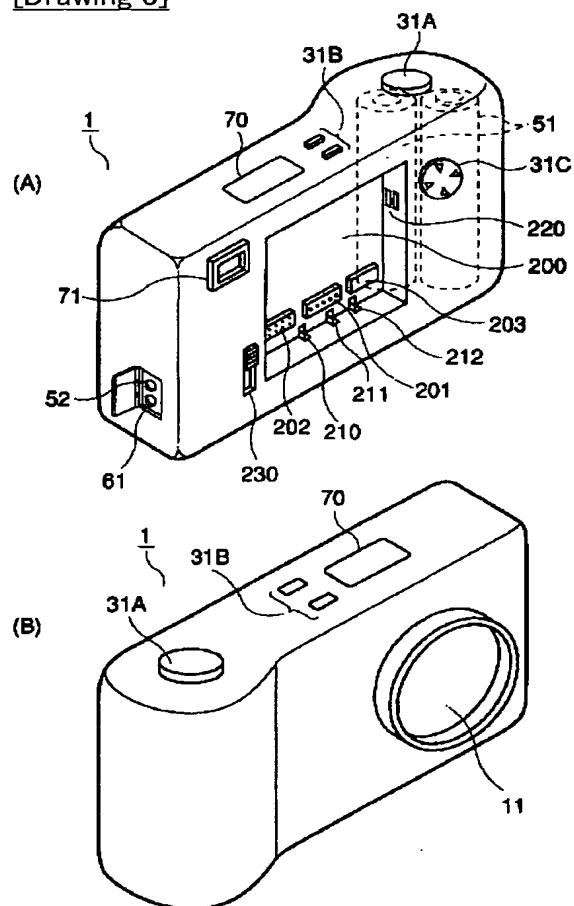
[Drawing 6]



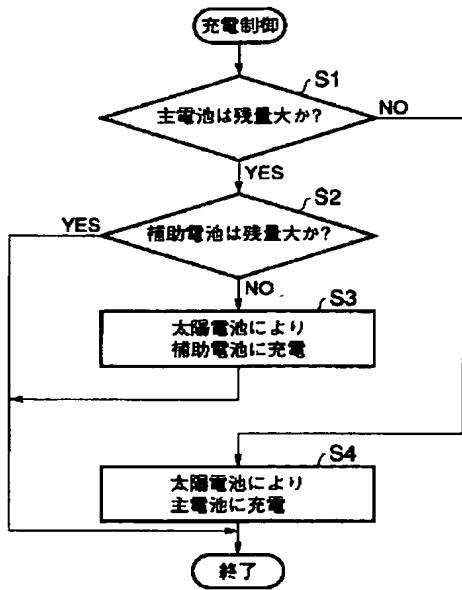
[Drawing 7]



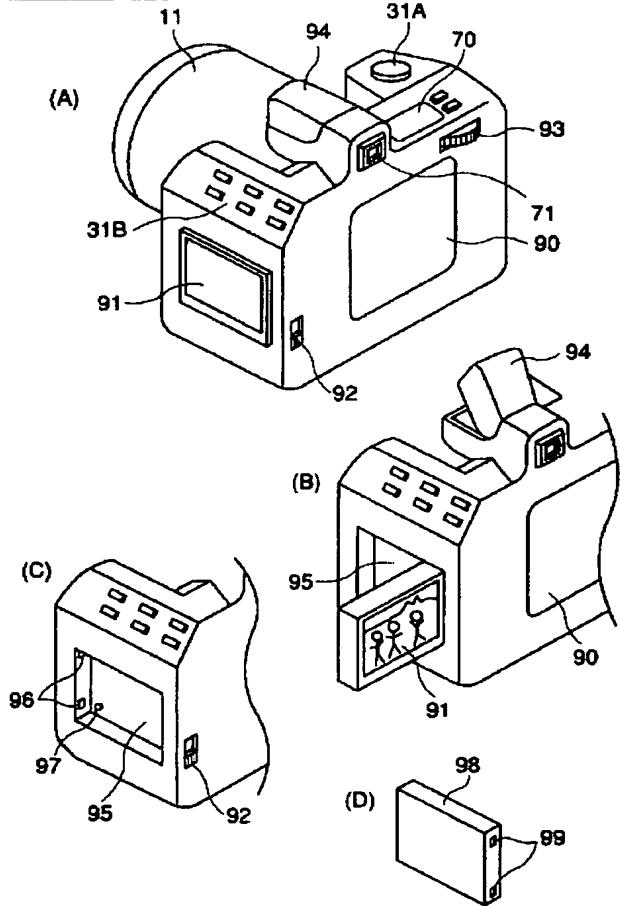
[Drawing 3]



[Drawing 8]



[Drawing 9]



[Translation done.]

(1) 終點出発公報登録  
(A) 開始許可書 (B) 特許許可書 (C) 特許登録公報

2) 公開特許公報(A)

[特許請求の範囲]

を有し、

特開2001-298645

前記画像表示手段との交換で前記カメラ本体に着脱可能に構成された構成であることを特徴とする。

(43) 公開日 平成13年10月26日(2001.10.26)  
〔Y2001 2300457A〕

るアクセサリ装置。

試別記号	(51) IntCl <sup>?</sup>	F 1	7-11-1 <sup>?</sup> (参考)
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G 0 3 B	17/02	5/225 17/02	B 2 H 1 0 0
17/38		17/38	Z 2 H 1 0 5
17/56		17/56	
19/02		19/02	5 C 0 2 2

前記画像表示手段との交換で前記カメラ本体に装着可能となる構成であることを特徴とする。アダプタ部に装着されて使用可能となる構成であることを特徴とする。アダプタ部を有する電子カメラに適用するアクセサリ装置であって、電子カメラの操作を遠隔的に行なうためのリモートコンローラを有し、

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【請求項９】 カメラ本体に着脱可能な画像表示手段を有する電子カメラ装置であって、  
電子カメラの操作性を遙隔的に行なうためのリモートコン  
トローラ及び前記カメラ本体の撮影手段により得られる  
画像データに基づいて画像を表示するための画像表示手段  
とを一体的に有し、  
前記前記画像表示手段との交換で前記カメラ本体に着脱可能であることを特徴とする  
アクセサリ装置。  
【請求項 10】 カメラ本体に着脱可能な画像表示手段  
を有する電子カメラに適用するアクセサリ装置であつ  
て、

【請求項 1】 前記制別手段は、アクセサリ装置の種類にかかわらず、電子カメラ本体に接続可能であり、前記機能の種類を前記カメラ本体側で判別させることができる制別手段を有することを特徴とするアクセサリ装置。

【発明の詳細な説明】

【0001】 「[従来の技術] 電子カメラは、カメラ本体に動作用電源となる充電池や、撮影により得られた画像データを記録するための記録媒体を搭載している。ここで、電子カメラとは、は、ディジタルカメラと呼ばれています。電子カメラは、動作部を主機能とするデジタルビデオカメラでも含む。また、記録媒体は、ICメモリ(EEPROMなど)を使用したメモリカードや、ハードディスクドライブ及び光磁気ディスク(MO)なども含む。

【0002】 【[従来の技術]】 ところで、電子カメラは、構成して販売される。

【0003】 これまであるため、小型・軽量であることが必要となることなどが一般的であるため、

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前記機能及び種類を別々に識別せらるしが

(54) [発明の名前] 電子カメラに適用するアクセサリ接続  
 (55) [要約] 電子カメラの携帯性を損なうことなく、補助機能を追加するためには、補助機能を選択的に追加できるようにして、使用生を向上できるアクセサリ装置を提供することにある。

(56) [解決手段] 電子カメラ本体1の背面側にアクセサリ100を選択的に装着して、電子カメラの主機能に補助機能を追加する。アクセサリ100としては、補助メモリユニット101、LCDユニット102、補助電池ユニット103、または補助電池とLCDが一體化された並置ユニット104の種類がある。アクセサリ100又は並置ユニット104を追加できる。アクセサリ100として、補助メモリユニット101、LCDユニット102、補助電池ユニット103、または補助電池とLCDが一體化された並置ユニット104の種類がある。アクセサリ100には、電子カメラ側でユニットの種類を判別できるように使用切り欠き部が設けられている。

【請求項 1】 前記制御手段は、アクセサリ装置の種類にかかるコード情報を電子カメラに出力するものであつることを特徴とする前記項目 10記載のアクセサリ装置。

【発明の詳細な説明】

[0 0 0 1] 【(発明の属する技術分野)】 本発明は、特に電子カメラに特徴を有する技術分野に属するものである。

【(発明の内容)】 本発明は、当該電子カメラの撮影動作に必要な主機能に対する補助機能又は拡張機能を実現するためのアクセサリ装置に関する技術である。

[0 0 0 2] 【(從来の技術)】 電子カメラは、カメラ本体に動作用電源を供給する部品により得られた画像データを記録する。ここで、電子カメラとは、デジタルカメラと呼ばれている電子スチールカメラ以外に、動画撮影を主機能とするデジタルビデオカメラも含む。また、記録媒体は、ICメモリ(EEPROMなど)を使用したメモリカードや、ハードディスクドライブ及び光磁気ディスク(MO)なども含む。

[0 0 0 3] ところで、電子カメラは、携帯して撮影することが一般的であるため、小型・軽量であることが必要である。

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モリ（特に複数のメモリカードや、大容量のディスクドライブなど）を搭載することは実用的ではない。しかし一方で、旅行や出張などの撮影状況によっては、撮影枚数の増加に伴って、大容量の電池やメモリが必要となる場合もある。

〔0004〕このような必要に対応するために、從来においては、例えば補助電池をカメラ本体の背面に着脱できるように、カメラ本体には補強装置が付いていない。また、カメラ本体には補強機能を有するアクセサリ装置を装着した場合には、電子カメラに対して一種の補強機能を実現できる。

〔0005〕

〔発明の解決しようとする課題〕小型・軽量化を重視している電子カメラでは、カメラ本体に搭載できる電池やメモリの容量は制限されている。このため、ユーザは、予備の電池やメモリを携帯し、必要な時に交換するところになる。しかし、このようなことは、煩わしいだけでなく、交換時にシャッターチャンスを逃す恐れもある。

また、前述の補助電池をカメラ本体に装着させる方には、追加した補助電池分だけサイズが大きくなり、カメラ本体の携帶性を損なうことになる。

〔0006〕また、電池やメモリの追加などのような補助機能の追加だけでなく、例えばリモコン機能付のLCDを必要に応じて装着できるような補強機能の追加ができることが望ましい。但し、単なるユニットの追加方式では、前述のように、カメラ本体の携帶性を損なうことになる。

〔0007〕そこで、本発明の目的は、電子カメラの携帶性を損なうことなく、電子カメラの主機能に補助機能又は補強機能を選択的に追加できるようにして、電子カメラの使用性を向上できる有用なアクセサリ装置を提供することにある。

〔0008〕

「課題を解決するための手段」本発明は、電子カメラ本体に対して選択的に装着可能で、電子カメラの主機能に追加できる補助機能又は補強機能を実現するためのアクセサリ装置に関する。アクセサリ装置は具体的には、補助機能を実現する補助電池や補助メモリカード、またはリモコンなどの補強機能を実現する交換型ユニットである。

〔0009〕本発明では、カメラ本体にLCDなどの画像表示手段が搭載可能な電子カメラを想定し、当該アクセサリ装置は画像表示手段との交換で、カメラ本体に搭載可能に接続される構成である。

〔0010〕このようないくつかの構成のアクセサリ装置を使用すれば、カメラ本体の限られたスペース（例えば背面側）を利用して、電子カメラの主機能に、補助機能又は補強機能を追加することができる。この場合、画像表示手段であるLCDユニットと交換して、アクセサリ装置をカメラ本体に接続せしめるため、カメラ本体のサイズが大きくなることは無く、電子カメラの携帶性を維持することができる。

- 〔0011〕具体的には、補助電池ユニットであるアクセサリ装置を装着した場合には、カメラ本体の主電池の電源容量を補助電池により増大化することができる。また、画像データを記録するメモリカードのアクセサリ装置を装着した場合には、カメラ本体のメモリの容量を増大化できるため、結果的に撮影枚数を増加させることができる。さらには、当該LCDユニット（002）は、LCD画面以外に、ミニ画面や、連写モード、ストロボ、ホワイトバランスなどの操作用情報を表示してもよい。また、当該LCD（002）とは別に、操作用情報のみを表示する専用LCDが設けられた構成でもよい。
- 〔0012〕〔発明の実施の形態〕以下図面を参照して、本発明の実施の形態を説明する。
- 〔0013〕（電子カメラの構成）図1は、同実施形態に係る電子カメラの要部を示すブロック図である。同実施形態の電子カメラは、標準装着による主機能以外に、補助機能や補強機能を追加するためのアクセサリ100の使用可能な電子スチールカメラ（デジタルカメラ）を想定する。
- 〔0014〕カメラ本体1は、図1に示すよろ、大別して撮影系10と、記憶系と、表示系と、制御・操作系と、電源系から構成されている。撮影系10は、撮影レンズ系（ズームレンズ、絞り部、オートフォーカスレンズなどを中心）11と、撮像素子12と、撮像回路13と、A/Dコンバータ14などを有する。
- 〔0015〕撮像素子12は、通常では數百万画素のCCD（charge coupled device）を有し、撮影レンズ系11を介して射入した被写体像を光変換する。撮像回路13は、撮像素子12からの撮像信号を入力し、ガンマ補正やホワイトバランス調整などの各種の信号処理を行ふ。A/Dコンバータ14は、撮像回路13から得られた撮像信号（画素数に応じたアナログ信号）をディジタル信号（画像データ）に変換する。
- 〔0016〕記憶系は、バッファメモリとして機能する内蔵メモリ（以下バッファメモリと表記する場合がある）15以外に、画像データを保存するための記録媒体ユニット20を有する。同実施形態の電子カメラは、複数種類の記録媒体が搭載可能な記録媒体ユニット20を有する。記録媒体ユニット20は、交換可能な記録媒体であるメモリカード21を収容可能に装着できるカードスロット22及びインターフェース23を有する。ここでは、記録媒体として、フラッシュEEPROMからなるメモリカード21を想定しているが、交換可能な光磁気ディスク（MO）などもよい。なお、同実施形態では、後述するように、当該メモリカード21を標準装備の主メモリとした場合に、アクセサリ100により補助メモリを追加することができる。
- 〔0017〕表示系は、撮影画像を表示するためのLCD（Liquid crystal display）を駆動するためのLCDドライバ16と、表示用データを格納するビデオメモリ（VRAM）17と、ビデオ出力回路18と、ビデオ出
- 力端子19とを有する。ここで、同実施形態では、前述するように、LCDはアクセサリ100に共通スロットして使用する機器である。カードユニットには、具体的にはメモリカード21を主メモリとした場合の補助メモリとして機能する補助メモリユニット101や、主電池1の補助電源として使用する補助電池ユニット103、補助電池とLCDが一体化された補助ユニット104、及びLCDユニット102が含まれる。
- 〔0018〕装着部200は、各カードユニット（101～104）に設けられているネクタに對応する複数のコネクタ201～204を有する。判別部301は、装着部200の各コネクタ201～204に接続された各カードユニットを検出するセンサを有し、当該装着部200に接続されたカードユニットの種類の判別信号をシステムコントローラ300に送信する。
- 〔0024〕具体的には、装着部200のコネクタ201～204に接続されているコネクタ200は、LCDユニット101のコネクタ101Aと接続可能であり、記録媒体ユニット20のインターフェース23に接続されている。コネクタ200は、LCDユニット102のコネクタ102Aまたは並張ユニット104のLCD用コネクタ104Aと接続可能であり、LCDドライバ16に接続されている。コネクタ201～203は、補助電池ユニット103のコネクタ103A、103Bまたは並張ユニット104のコネクタ104B、103Cと接続可能であり、電源部50の切替部5に接続されている。
- 〔0025〕（カメラ本体及び装着部の構造）図3は、同実施形態のカメラ本体1の外観を示す図である。同図（A）は背面側を示す図であり、同図（B）は前面側を示す図である。
- 〔0026〕同図（B）に示すように、カメラ本体1の前面側には、撮影レンズ系11が設けられている。また、カメラ本体1の上面側には、操作部31のレリーズボタン31Aや他の操作ボタン31B、及びモノクロのLCD70が設けられている。このLCD70は、例えば操作用情報を表示するためのLCDである。
- 〔0027〕一方、カメラ本体1の背面側には、当該本体1と一体的な凹部から構成される装着部200が設けられている。当該凹部の形状及びサイズ（深さを含む）は、アクセサリ100の各カードユニット101～104の外形形状及びサイズ（厚みを含む）にほぼ合致する。装着部200の内部には、所定の位置に各コネクタ201～204、判別部301に含まれる各センサ210～212、及びメカニカルなロック機構220が設けられている。
- 〔0028〕各センサ210～212は、後述するようにより欠き部を検出する。判別部301は、各センサ210～212からの検出結果に基づいて、各カードユニット101～104に設けられた検出用端子61を有し、例えばテレビジョンやパソコン用の接続端子を送出できる。
- 〔0029〕同実施形態のカメラ本体1は、前述したように、アクセサリ100を使用するための装着部200を有する。アクセサリ100は、主電池51や補助電池（103、104）の残容量を示す回路を有し、検出結果をシステムコントローラ300に通知する機能を有する。
- 〔0030〕さらに、カメラ本体1は、画像データを外部に取出するための外部インターフェース60及び外部出力用端子61を有し、例えばテレビジョンやパソコン用の接続端子を送出できる。
- 〔0031〕同実施形態のカメラ本体1は、前述したように、アクセサリ100を格納するためのLCDドライバ16と、表示用データを格納するためのVRAM17と、ビデオ出力回路18と、ビデオ出力回路22



検出用コネクタから予め設定された認識コード(例えば3ピット)を出力する回路が設けられている。種類検出用コネクタは、専用コネクタとして信号用コネクタ(例えば101A)の近傍(各アクセサリの共通位置)に配置される構成でもよいし、また当該信号用コネクタと一緒に構成されていてもよい。

[0055] 接続部200は、当該種類検出用コネクタに対応するコネクタを有し、装着されたアクセサリから出力される認識コードをシステムコントローラ30に転送する。システムコントローラ30は、認識コードをデコードして、装着部200に装着されたアクセサリの種類を判別する。

[0056] このような本実形態例の判別方式であれば、アクセサリの種類が増大した場合には、検出用切り欠き部を利用する方式と比較して、容易に対応できる効果がある。

[0057] 「発明の効果」以上詳述したように本発明のアクセサリ装置を使用すれば、電子カメラに対して補助電池や補助メモリのような補助機能及び拡張機能を選択的に追加できる。さらに、電子カメラ本体の拡張性を損なうことなく、電子カメラの使用性を向上させることができる。

(図面の簡単な説明)

(図1) 本発明の実形態に関係する電子カメラの要部を示すブロック図。

(図2) 同実形態に関係する補助電池ユニットの一例を示すブロック図。

(図3) 同実形態に関係するカメラ本体の外観を示す斜視図。

(図4) 同実形態に関係するアクセサリの外観を示す斜視図。

(図5) 同実形態に関係するアクセサリの外観を示す斜視図。

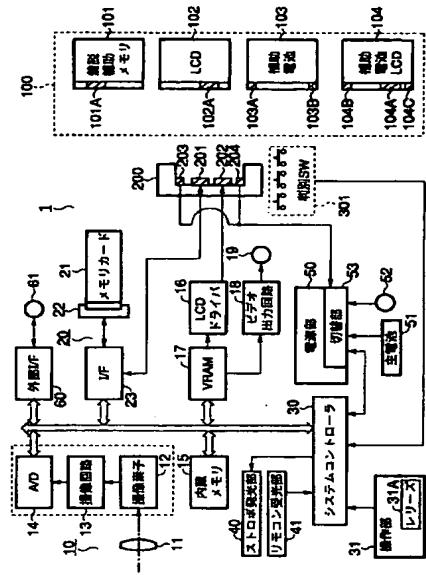
(図6) 同実形態に関係するアクセサリの外観を示す斜視図。

(図7) 同実形態に関係するアクセサリの外観を示す斜視図。

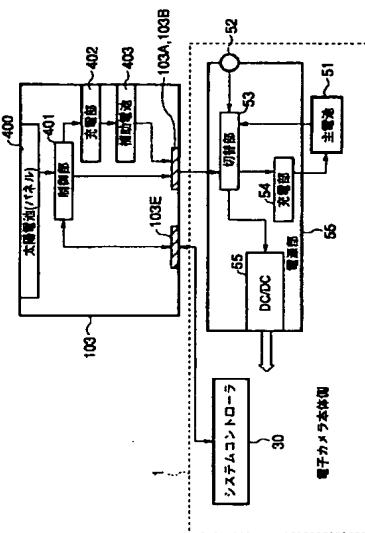
(図8) 同実形態のアクセサリに含まれる補助電池ユニットを示す斜視図。

\* ニットを使用した場合の充電制御の手順を示すフロー図。

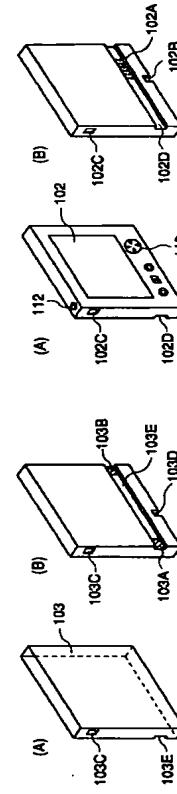
[図1]



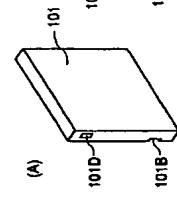
[図2]



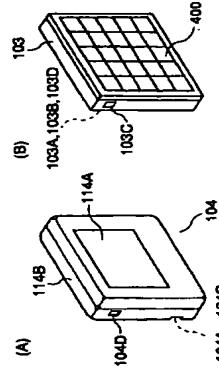
[図5]



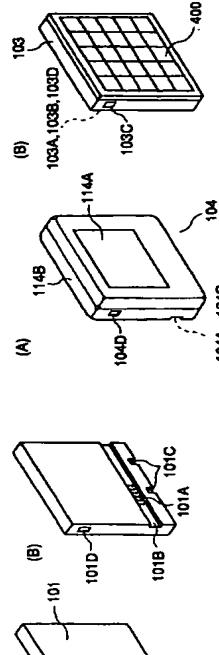
[図6]



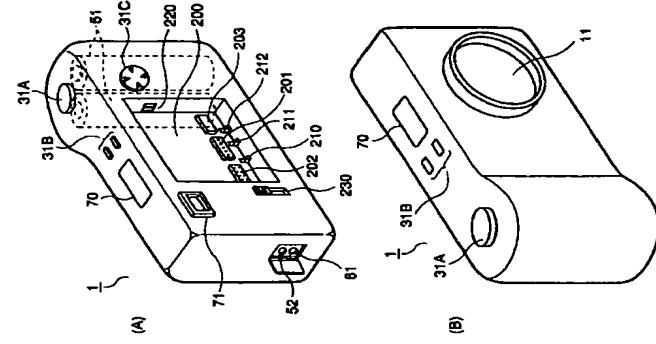
[図7]



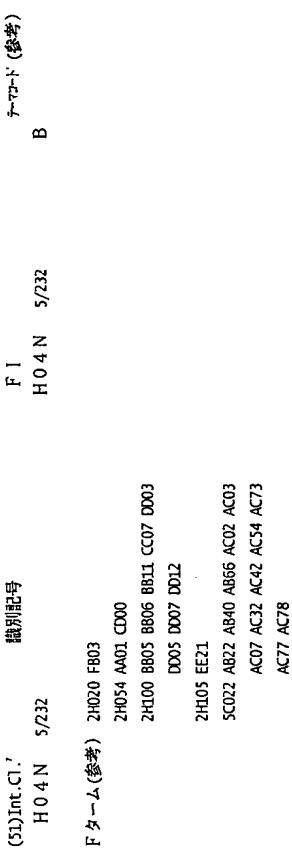
[図8]



【図3】



【図8】



【図9】

